

Visual Processing	<p>Definition: Ability to perceive, analyze, synthesize, manipulate and think with visual patterns examples include drawing, puzzles, maze, graphs/charts. The ability to form and store a mental representation of an image, visual shape, or configuration over at least a few seconds then recall it later.</p>
	<p>Remediable: Generally no; however, there are some tracking problems that can be remediated. Consult vision specialist.</p>
	<p>Impacts: Research indicates likely impacts are with spelling (orthographic processing) recognizing patterns or trends in visual information. This impact would be seen in early acquisition of reading skills when phonemic awareness and language skills are intact. It may appear most obviously when reading connected text as compared to word lists. Focusing on fine visual detail, spatial relationships and characteristics as well as organizing and recalling visual material. The later set of skills are more typically required in higher math such as geometry and trigonometry; therefore, except for the pattern of achievement described for reading this ability is less likely to impact achievement in math until high school. More targeted areas of academic impact follow and should be useful in interpreting student work samples, teacher interview, and test results.</p>

READING Achievement

- Using visual features of letters for decoding and spelling (also known as orthographic coding).
- Sight word acquisition, reading charts and graphs within a text.
- Interpreting text that uses or requires comprehension of spatial concepts such as location, boundaries, movement, etc.
- Comprehending lectures using language that conveys spatial awareness.

MATH Achievement

- Number alignment during computations
- Reading and interpreting graphs, tables, and charts (crosses multiple content areas)
- Higher level or advanced mathematics (e.g., geometry, calculus).

WRITING Achievement

- Spelling sight words.
- Spatial planning during writing (e.g. location of writing relative to margins, words that overhang a line, space between words, etc.
- Inconsistent size, spacing, position, and slant of letters.
- Keyboarding.
- Use of spatial and directional words in writing.

Visual Processing

Additional Indicators across other environments and contexts

- **At home, with peers, in the community**
- **Observed behaviors during assessment**
- **Other indicators in performance or vocational readiness**

Research-based Implications for Instruction, Curriculum, Environment (ICE):

Instruction:

- Teach orthographic and morphographic strategies for decoding (word length, shape, etc).

Curriculum:

Environment:

Recommendation for Differentiation in the General Classroom for Short-Term and Working

Memory: (includes changes in methods, Universal Design for Learning, process, accommodations, assistive technology, etc.)

Content	Process	Product
<ul style="list-style-type: none"> • Pair verbal information with visuals • Use concrete models to support verbal information that involves visual concepts. • Provide support for tasks requiring spatial organizations. • Provide manipulatives and labels or verbal cues to facilitate understanding of spatial and visual concepts. 	<ul style="list-style-type: none"> • Use visual memory games and teach children to verbalize visual information to store and remember it. • Capitalize on students phonemic awareness skills for decoding. • Use labels and verbal cues for charts and graphs. • Highlight margins and use paper with wider lines during writing tasks. • Use graph paper to assist with number alignment. 	<ul style="list-style-type: none"> • Provide copying, tracing, and drawing activities • Software program options that enable the user to change background and text colors or to change font size. • Use of colored overlays • Text to speech programs • Color coding for maintaining columns in math • Use of a computer in a pen that can capture handwriting at the same time it is recording speech • Accessible Instructional Materials including textbooks with voice output options • Materials that can be scanned and read back to the user with voice output • Talking spellcheckers and dictionaries • Voice Recognition Software

Implications for Achieving Proficiency on State Standards

Samples of English Language Arts content standards which, if unsupported, may exceed a student's working memory capacities or compensatory strategies:

Grade 2 Reading standards for Literature Integration of Knowledge and Ideas: explain how specific images contributes to and clarify a text.

Resources and Research Implicating Link to Achievement

Woodcock Johnson III : Reports, Recommendations, and Strategies by Nancy Mather and Lynne E. Jaffe

Essentials of Evidence-Based Academic Interventions by Barbara J. Wendling and Nancy Mather

Cognitive Functioning: Identifying, Understanding, and Addressing the Impact of Cognitive Deficits in the Classroom (PowerPoint) by Jennifer Mascolo PsyD St. Johns University

Assortment of CHC Theory documents by Flanagan, Ortiz,, Alfonso, Mascolo, and McGrew
